

## SAFETY DATA SHEET

Version 6.6  
Revision Date 01/21/2021  
Print Date 04/09/2022**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Sodium borohydride

Product Number : 452882  
Brand : Aldrich  
CAS-No. : 16940-66-2**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATESTelephone : +1 314 771-5765  
Fax : +1 800 325-5052**1.4 Emergency telephone**Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**Chemicals which, in contact with water, emit flammable gases (Category 1), H260  
Acute toxicity, Oral (Category 3), H301  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)	
H260	In contact with water releases flammable gases which may ignite spontaneously.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H360	May damage fertility or the unborn child.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Do not allow contact with water.
P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dusts or mists.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms	:	Sodium tetrahydridoborate VenPure®
Formula	:	H <sub>4</sub> BNa
Molecular weight	:	37.83 g/mol
CAS-No.	:	16940-66-2
EC-No.	:	241-004-4

Component	Classification	Concentration
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<b>sodium borohydride</b>		
	1; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Repr. 1B; H260, H301, H314, H318, H360 Concentration limits: >= 3.4 %: Repr. 1B, H360F;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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#### **SECTION 4: First aid measures**

##### **4.1 Description of first-aid measures**

No data available

##### **4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

##### **4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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#### **SECTION 5: Firefighting measures**

##### **5.1 Extinguishing media**

###### **Suitable extinguishing media**

Sand Dry powder Cement

###### **Unsuitable extinguishing media**

Water Carbon dioxide (CO<sub>2</sub>) Foam

##### **5.2 Special hazards arising from the substance or mixture**

Borane/boron oxides

Sodium oxides

Not combustible.

##### **5.3 Advice for firefighters**

No data available

##### **5.4 Further information**

No data available

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#### **SECTION 6: Accidental release measures**

##### **6.1 Personal precautions, protective equipment and emergency procedures**

For personal protection see section 8.

##### **6.2 Environmental precautions**

No data available

##### **6.3 Methods and materials for containment and cleaning up**

No data available

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## 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Air and moisture sensitive. Store under inert gas.

Storage class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Personal protective equipment

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

##### Control of environmental exposure

Prevent product from entering drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: solid Color: white
b) Odor	amine-like
c) Odor Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: > 300 °C (> 572 °F) - dec.
f) Initial boiling point and boiling range	> 400 °C > 752 °F at ca.1,013 hPa - OECD Test Guideline 103
g) Flash point	69 °C (156 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Lower explosion limit: 3.02 %(V)
k) Vapor pressure	< 1 hPa at 25 °C (77 °F) - OECD Test Guideline 104
l) Vapor density	1.3
m) Relative density	1.07 g/cm <sup>3</sup> at 20 °C (68 °F) -
n) Water solubility	Decomposes in contact with water., Risk of violent reaction.
o) Partition coefficient: n-octanol/water	- Not applicable for inorganic substances
p) Autoignition temperature	> 400 °C (> 752 °F) at 1,013 hPa - Relative self-ignition temperature for solids
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### 9.2 Other safety information

Relative vapor density	1.3
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Reacts violently with water.

### 10.2 Chemical stability

No data available

### 10.3 Possibility of hazardous reactions

Risk of explosion with:

Water

Alcohols

(generation of hydrogen)

Copper

Nickel

in finely distributed form.

aluminium chloride

metallic salts

phenol

Strong oxidizing agents

polymerisable substances

hydrogen peroxide

Powdered metals

acids

Risk of ignition or formation of inflammable gases or vapours with:

carbon/soot

Exothermic reaction with:

phosphoric acid

conc. sulfuric acid

Dimethylformamide

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 162 mg/kg

(Calculation method)

LD50 Oral - Rat - female - 56.57 mg/kg

(OECD Test Guideline 425)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

LC50 Inhalation - Rat - male - 4 h - > 1.3 mg/l

Remarks:

(highest concentration to be prepared)

(ECHA)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: , damage of respiratory tract

Acute toxicity estimate Dermal - 230 mg/kg

(Calculation method)

LD50 Dermal - Rabbit - male - 4,000 - 8,000 mg/kg

Remarks:

(External MSDS)

No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

(OECD Test Guideline 404)

Remarks:

(Test in mixture)

#### **Serious eye damage/eye irritation**

Causes serious eye damage. Risk of corneal clouding.

#### **Respiratory or skin sensitization**

Sensitisation test: - Guinea pig

Result: negative

Remarks:

(External MSDS)

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### **Reproductive toxicity**

May damage the unborn child.

May damage fertility.

#### **Specific target organ toxicity - single exposure**

No data available

Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity - mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

### **11.2 Additional Information**

RTECS: ED3325000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Decomposition of the substance with tissue moisture.

After absorption:

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CNS disorders  
Headache

Other information

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

Toxicity to fish                      LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h  
Remarks: (External MSDS)

Toxicity to bacteria

### **12.2 Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

### **12.3 Bioaccumulative potential**

No data available

### **12.4 Mobility in soil**

No data available

### **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### **12.6 Other adverse effects**

Forms toxic mixtures in water, dilution measures notwithstanding.  
Discharge into the environment must be avoided.

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## **SECTION 13: Disposal considerations**

### **13.1 Waste treatment methods**

No data available

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## **SECTION 14: Transport information**

### **DOT (US)**

UN number: 1426    Class: 4.3                      Packing group: I

Proper shipping name: Sodium borohydride

Reportable Quantity (RQ):

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Poison Inhalation Hazard: No

**IMDG**

UN number: 1426 Class: 4.3 Packing group: I EMS-No: F-G, S-O  
Proper shipping name: SODIUM BOROHYDRIDE

**IATA**

UN number: 1426 Class: 4.3 Packing group: I  
Proper shipping name: Sodium borohydride  
IATA Passenger: Not permitted for transport

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**SECTION 15: Regulatory information**

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

sodium borohydride	CAS-No. 16940-66-2	Revision Date 2007-03-01
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**New Jersey Right To Know Components**

sodium borohydride	CAS-No. 16940-66-2	Revision Date 2007-03-01
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**SECTION 16: Other information**

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

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